

**Amendment and Response**

Applicant: David C. Collins et al.  
Serial No.: 10/821,135  
Filed: April 8, 2004  
Docket No.: 200400517-1  
Title: GENERATING AND DISPLAYING SPATIALLY OFFSET SUB-FRAMES

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**REMARKS**

The following remarks are made in response to the Office Action mailed January 16, 2008. Claims 1-15, 20, 21 and 23 were rejected. Claims 16-19 have been objected to. With this Response, claims 1, 13, 20, and 26 have been amended. Claims 1-21 and 23-33 remain pending in the application and are presented for reconsideration and allowance.

**Double Patenting**

Claim 1 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,109,981 (Damera-Venkata) in view of U.S. Patent Publication No. 2003/0020809 (Gibbon).

Claim 1, as amended, recites, *inter alia*:

receiving image data for the image, the image data comprising a first set of pixels;  
generating first and second sub-frames, wherein the first and the second sub-frames comprise a second set of pixels, wherein each of the second set of pixels is centered relative to a respective one of the first set of pixels;

Claim 1 of Damera-Venkata does not recite “wherein each of the second set of pixels is centered relative to a respective one of the first set of pixels” as recited in claim 1.

Gibbon does not teach or suggest this feature of claim 1. The Examiner cites the teaching of Gibbon that “the two resulting sub-images are offset by one half of a pixel in both horizontal and vertical directions . . .” Gibbon, [0012]. This teaching describes a relationship between “the two resulting sub-images” of Gibbon. The teaching does not, however, describe the spatial relationship between “the two resulting sub-images” and the image data from which “the two resulting sub-images” were created.

Claim 1 recites that “each of the second set of pixels (i.e., the pixels of “the first and the second sub-frames”) is centered relative to a respective one of the first set of pixels (i.e., the pixels of the image data). Thus, the teaching of Gibbon cited by the Examiner does not teach or suggest the above feature of claim 1.

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Applicants respectfully request the withdrawal of the nonstatutory obviousness-type double patenting rejection of claim 1 for at least this reason.

**Drawings**

The drawings are objected to under 37 CFR 1.83(a) as failing to show every feature specified in claim 20.

Applicants respectfully refer the Examiner to Figures 19A-19E which collectively show four sub-frames 1412A, 1422A, 1432A, and 1442A. Figures 19A-19E also show how the pixels of sub-frames 1412A, 1422A, 1432A, and 1442A are centered relative to the pixels of image 28 in one embodiment.

Applicants respectfully request the withdrawal of the objection to the drawings for at least this reason.

**Claim Rejections under 35 U.S.C. § 112**

Claim 20 is rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Claim 20 has been amended to recite “the system comprising . . .”

Applicants respectfully refer the Examiner to Figures 19A-23 and accompanying description on pages 35-43 of the specification.

The following features of Claim 20 are supported by at least the following citations:

means for generating the first, the second, the third, and the fourth sub-frames using the image data, each of the first, second, third, and fourth sub-frames comprising a plurality of sub-frame pixel values that correspond to a plurality of sub-frame pixels that are centered with respect to a plurality of pixels of the image data; (p. 35, line 11 to p. 36, line 28; p. 40, lines 1-20; and Figures 19A-19E)

means for calculating a plurality of simulated image pixel values for a simulated image by convolving each of the sub-frame pixel values with at least four other sub-frame pixel values; and (p. 36, line 29 to p. 37, line 32; p. 40, line 21 to p. 41, line 32; and Figures 20 and 22)

means for updating the first, the second, the third, and the fourth sub-frames in accordance with a difference between the simulated image and the image data. (p. 38, line 1

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to p. 39, line 31; p. 42, line 1 to p. 43, line 4; and Figures 21 and 23)

Applicants respectfully request the withdrawal of the rejection of claim 20 under 35 U.S.C. §112, first paragraph, for at least this reason.

**Claim Rejections under 35 U.S.C. § 102**

Claims 1, 2, and 13 are rejected under 35 U.S.C. §102(b) as being anticipated by Gibbon.

Claim 1, as amended, recites, *inter alia*:

receiving image data for the image, the image data comprising a first set of pixels;  
generating first and second sub-frames, wherein the first and the second sub-frames comprise a second set of pixels, wherein each of the second set of pixels is centered relative to one of the first set of pixels;

The Office Action fails to identify a teaching in Gibbon of “wherein each of the second set of pixels is centered relative to one of the first set of pixels” as recited in claim 1.

As noted above with reference to the nonstatutory obviousness-type double patenting rejection of claim 1, Gibbon does not describe the spatial relationship between “the two resulting sub-images” (e.g., paragraph [0012]) and the image data from which “the two resulting sub-images” were created. In paragraph [0012], Gibbon only teaches a spatial relationship between “the two resulting sub-images”. None of the remaining citations to Gibbon in the Office Action (i.e., Figures 6, 13, and 14 and paragraphs [0012], [0035], and [0046]-[0048]) overcome this deficiency.

As noted above, claim 1 recites that “each of the second set of pixels (i.e., the pixels of “the first and the second sub-frames”) is centered relative to a respective one of the first set of pixels (i.e., the pixels of the image data). Thus, the teachings of Gibbon cited by the Examiner does not teach or suggest the above feature of claim 1.

Applicants respectfully request the withdrawal of the rejection of claim 1 and claim 2 which depends from claim 1 under 35 U.S.C. §102(b) for at least this reason.

Applicants respectfully request the withdrawal of the rejection of claim 13 for at least the reasons given above for claim 1.

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In addition, claim 13 recites, *inter alia*:

an image processing unit configured to define first, second, third, and fourth sub-frames comprising a second set of pixels, wherein each of the second set of pixels is centered on a respective one of the first set of pixels; and

a display device adapted to alternately display the first sub-frame in a first position, the second sub-frame in a second position spatially offset from the first position, the third sub-frame in a third position spatially offset from the first position and the second position, and the fourth sub-frame in a fourth position spatially offset from the first position, the second position, and the third position.

The Office Action has failed to identify a teaching or suggestion of “an image processing unit configured to define … third, and fourth sub-frames comprising a second set of pixels, wherein each of the second set of pixels is centered on a respective one of the first set of pixels” or “a display device adapted to alternately display … the third sub-frame in a third position spatially offset from the first position and the second position, and the fourth sub-frame in a fourth position spatially offset from the first position, the second position, and the third position” as recited in claim 13.

Applicants respectfully request the withdrawal of the rejection of claim 13 for at least this additional reason.

**Claim Rejections under 35 U.S.C. § 103**

Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over Gibbon in view of U.S. Patent No. 6,304,245 (Groenenboom).

Claims 3-6, 20, 23, 26, and 27-28 are rejected under 35 U.S.C. §103(a) as being unpatentable over Gibbon in view of U.S. Patent No. 6,650,704 (Carlson).

Claims 7-12, 14-15, 21, 24-25 and 29-33 are rejected under 35 U.S.C. §103(a) as being unpatentable over Gibbon in view of Carlson and further in view of U.S. Pub. 2003/0063190 (Young).

Claims 3-12 depend from claim 1. Neither Carlson nor Young teach or suggest the features of claim 1 identified above that are not taught or suggested by Gibbon. Accordingly,

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Applicants respectfully request the withdrawal of the rejection of claims 3-12 under 35 U.S.C. §103(a) for at least this reason.

Claims 14-15 depend from claim 13. None of Carlson, Young, or Groenenboom teach or suggest the features of claim 13 identified above that are not taught or suggested by Gibbon. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 14-15 under 35 U.S.C. §103(a) for at least this reason.

Gibbon does not teach or suggest all of the features of claim 20 for at least the reasons given above for claim 1. In addition, Carlson does not teach or suggest these features of claim 20. Accordingly, Applicants respectfully request the withdrawal of the rejection of claim 20 and claim 23 which depends from claim 20 under 35 U.S.C. §103(a) for at least this reason.

Claims 21, 24, and 25 also depend from claim 20. Young does not teach or suggest the features of claim 20 identified above that are not taught or suggested by Gibbon or Carlson. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 21, 22, 24, and 25 under 35 U.S.C. §103(a) for at least this reason.

Gibbon does not teach or suggest all of the features of claim 26 for at least the reasons given above for claim 1. In addition, Carlson does not teach or suggest these features of claim 26. Accordingly, Applicants respectfully request the withdrawal of the rejection of claim 26 and claims 27 and 28 which depends from claim 26 under 35 U.S.C. §103(a) for at least this reason.

Claims 29-33 also depend from claim 26. Young does not teach or suggest the features of claim 26 identified above that are not taught or suggested by Gibbon or Carlson. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 29-33 under 35 U.S.C. §103(a) for at least this reason.

**Allowable Subject Matter**

The Examiner objected to claims 16-19 for being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all limitations of the base claim and any intervening claims and if rewritten to overcome the 35 U.S.C. §112 rejections.

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Based on the preceding argument, Applicants believe the parent claims of claims 16-19 are also allowable and thus Applicants have chosen not to place them in independent form.

**CONCLUSION**

In view of the above, Applicant respectfully submits that pending claims 1-21 and 23-33 are in form for allowance and are not taught or suggested by the cited references.

Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-21 and 23-33 is respectfully requested.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 08-2025.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to either Roger Greer at Telephone No. (312) 360-0080, Facsimile No. (312) 360-9315 or Christopher P. Kosh at Telephone No. (512) 241-2403, Facsimile No. (512) 241-2409. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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Date: April 15, 2008

CPK:dmd

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